

WHAT IS CLAIMED IS:

1. A semiconductor device assembly, comprising:

a semiconductor chip;

5 a plurality of spring pins;

a substrate coupled between the chip and the plurality of spring pins; and

a PCB coupled to the plurality of spring pins.

10 2. The assembly of claim 1, wherein said plurality of spring pins have a central C-shaped region.

3. The assembly of claim 1, wherein said plurality of spring pins have a central V-shaped region.

15 4. The assembly of claim 1, wherein said plurality of spring pins provide a flexible compliance along an axial direction to prevent electrical opens caused by thermal expansion and contraction of an active assembly.

20 5. The assembly of claim 1, wherein said plurality of spring pins include a bent central region.

6. The assembly of claim 5, wherein the size of the bent central region can increase or decrease in size to absorb thermal expansion and contraction of an active assembly.

7. The assembly of claim 1, wherein the PCB couples to the spring pins by a force
5 applied from the assembly.

8. The assembly of claim 1, wherein said spring pins change shape to reduce the development of electrical opens while the assembly reacts to operational temperature cycles.

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9. The assembly of claim 1, wherein said plurality of spring pins provide a pitch of about 30 mils to 100 mils.

10. The assembly of claim 1, wherein said substrate comprises a material selected
15 from the group including BT laminate, FR-4, cyanate ester, alumina, and glass ceramic.

11. The assembly of claim 1, further including bond wire attached between said chip and said substrate.

12. A process of fabricating a semiconductor device assembly, comprising:

providing a substrate including first and second surfaces;

providing a PCB;

coupling a plurality of spring pins between the PCB and a first side of the

5 substrate; and

securing a semiconductor chip to a second surface of the substrate.

13. The process of claim 12, wherein coupling a plurality of spring pins provides a

flexibility to the substrate to reduce the development of electrical opens while the

10 assembly reacts to operational temperature cycles.

14. The process of claim 12, wherein coupling a plurality of spring pins further

includes attaching said plurality of spring pins to the substrate by a technique selected

from the group comprising brazing, embedding, plating, and adhering.

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15. The process of claim 14, wherein adhering a plurality of spring pins further

includes adhesively coupling said spring pins to the first surface of said substrate using a

material having conductive properties.

20 16. The process of claim 12, wherein providing the substrate includes providing a

substrate comprised of a material selected from the group including tape, plastic,

laminated, and ceramic.

17. The process of claim 12, further including bond wire attached between said chip and said substrate.

5 18. The process of claim 12, wherein the step of coupling the spring pins to the PCB further includes the substrate and PCB applying a force to the spring pins to create an electrical connection between the substrate and the PCB.

19. The process of claim 18 further includes testing the conductivity of the assembly.

10 20. The process of claim 12, wherein the spring pins are formed by bending a central region of straight pins to form a "C" or "V" shaped region.

21. The process of claim 20, wherein the central region of the straight pins are bent
15 before the spring pins are coupled between the substrate and the PCB.

22. The process of claim 20, wherein the central region of the straight pins are bent after the spring pins are coupled between the substrate and the PCB.

23. A semiconductor device assembly being coupled to a PCB, the assembly comprising:

a substrate;

5 a semiconductor chip coupled to the substrate; and

a plurality of conductive leads electrically coupled between the assembly and PCB, the leads provide a flexible characteristic for accommodating the physical changes that the resultant structure endures during operational cycles.

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24. The assembly of claim 23, wherein said plurality of conductive leads provide a bent central region.

25. The assembly of claim 23, wherein said conductive leads change shape to reduce
15 the development of electrical opens while the assembly reacts to operational temperature cycles.